

# INTERNATIONAL SEARCH REPORT

International application No

PCT/US04/395 12

<b>A CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) C07D 471/04 471/14 US CL 546/82, 87 118, 514/292 303 According to International Patent Classification (IPC) or to both national classification and IPC																									
<b>B FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U S 546/82 87 118 514/292 303																									
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																									
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet																									
<b>C DOCUMENTS CONSIDERED TO BE RELEVANT</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Category</th> <th style="text-align: left; padding: 2px;">Citation of document, with indication, where appropriate, of the relevant passages</th> <th style="text-align: left; padding: 2px;">Relevant to claim No</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">A</td> <td style="padding: 2px;">US 4 929,624 (GERSTER et al) 29 May 1990 (29 05 1990), see entire article, especially column 3-4 reaction scheme</td> <td style="padding: 2px;">1, 3, 9, 10</td> </tr> <tr> <td style="padding: 2px;">A</td> <td style="padding: 2px;">US 6 465,654 B2 (GERSTER et al) 15 October 2002 (15 10 2002), see entire article especially reaction schemes at col 7-10</td> <td style="padding: 2px;">1, 3, 9, 10</td> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;">US 5 756 747 A (GERSTER) 26 July 1998 (26 07 1998) column 17 line 36, example 26</td> <td style="padding: 2px;">1, 2, 6</td> </tr> <tr> <td style="padding: 2px;">X P</td> <td style="padding: 2px;">US 2004/0 17086 A1 (FINK et al) 2 September 2004 (02 09 2004) page 15-16th compound of table 4</td> <td style="padding: 2px;">2, 5</td> </tr> <tr> <td style="padding: 2px;">Y, P</td> <td style="padding: 2px;">US 2004/0 147543 A1 (HAYS et al) 29 July 2004 (29 07 2004) page 68 example 162</td> <td style="padding: 2px;">2, 4-5</td> </tr> <tr> <td style="padding: 2px;">Y, P</td> <td style="padding: 2px;">US 2004/0 147543 A1 (HAYS et al) 29 July 2004 (29 07 2004) page 68 example 162</td> <td style="padding: 2px;">2, 4-8</td> </tr> <tr> <td style="padding: 2px;">X E</td> <td style="padding: 2px;">US 2005/0070460 A1 (HAMMERBECK et al) 31 March 2005 (31 03 2005) page 8, Table 3, IRM compounds</td> <td style="padding: 2px;">2, 4-8</td> </tr> </tbody> </table>		Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No	A	US 4 929,624 (GERSTER et al) 29 May 1990 (29 05 1990), see entire article, especially column 3-4 reaction scheme	1, 3, 9, 10	A	US 6 465,654 B2 (GERSTER et al) 15 October 2002 (15 10 2002), see entire article especially reaction schemes at col 7-10	1, 3, 9, 10	X	US 5 756 747 A (GERSTER) 26 July 1998 (26 07 1998) column 17 line 36, example 26	1, 2, 6	X P	US 2004/0 17086 A1 (FINK et al) 2 September 2004 (02 09 2004) page 15-16th compound of table 4	2, 5	Y, P	US 2004/0 147543 A1 (HAYS et al) 29 July 2004 (29 07 2004) page 68 example 162	2, 4-5	Y, P	US 2004/0 147543 A1 (HAYS et al) 29 July 2004 (29 07 2004) page 68 example 162	2, 4-8	X E	US 2005/0070460 A1 (HAMMERBECK et al) 31 March 2005 (31 03 2005) page 8, Table 3, IRM compounds	2, 4-8
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<input type="checkbox"/> Further documents are listed in the continuation of Box C <input type="checkbox"/> See patent family annex																									
* Special categories of cited documents "A" document defining the general state of the art which is not considered to be of particular relevance "I" prior application which published no later than the international filing date "L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (is specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed																									
Date of the actual completion of the international search 08 August 2005 (08 08 2005)																									
Date of mailing of the international search report 29 MAY 2006																									
Name and mailing address of the ISA/US Mail Stop PCT Attn ISA/US Commissioner for Patents P O Box 1450 Alexandria, Virginia 223 13-1450 Facsimile No (571) 273-3201																									
Authorized officer Celia Chang Telephone No 571-272-1600																									

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/US04/39512

## BOX III OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined the appropriate additional examination fees must be paid.

Group I claims 1 (in part) 3 9 10 drawn to compounds of formula I-1 wherein  $R_A$  and  $R_B$  do not form ring i.e. bis(2-alkyl-7-oxo-4-oxazepin-1-yl) compound

Group II claims 1 (in part) 2 4 8 11 drawn to compounds of formula I-1 wherein  $R_A$  and  $R_B$  form a 6-membered carbocyclic ring i.e. tricyclic imidazopyrrolidine compound

Group III claims 1 om [art, drawn to compound of formula I-1 wherein  $R_A$  and  $R_B$  forms ring not encompassed by group II

Group IV claim 33 drawn to an imidazoquinoline intermediate compound of formula II

Group V claims 34 35 drawn to quinoline intermediate compound of formula III or IV

The inventions listed as Groups I-V do not relate to a single general inventive concept under PCT Rule 13.1 because under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: groups I-V have diverse core structures which do not have sufficient similarity to allow a Markush grouping to exhibit unity absent some teaching of equivalence in the prior art.

Continuation of B FIELDS SEARCHED Item 3  
CAS-structure  
EAST/WEST-image subclass

# INTERNATIONAL SEARCH REPORT

International application No

PCT/US04/395 12

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

- 1  Claims Nos  
because they relate to subject matter not required to be searched by this Authority, namely
  
  
  
  
  
- 2  Claims Nos  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically
  
  
  
  
  
- 3  Claims Nos 12 32  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application as follows  
Please See Continuation Sheet

- 1  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
- 2  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee
- 3  As only some of the required additional search fees were timely paid by the applicant this international search report covers only those claims for which fees were paid, specifically claims Nos 1(in part), 2-11
  
  
  
  
  
- 4  No required additional search fees were timely paid by the applicant Consequently, this international search report is restricted to the invention first mentioned in the claims, it is covered by claims Nos

Remark on Protest  The additional search fees were accompanied by the applicant's protest  
 No protest accompanied the payment of additional search fees